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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,893	10/31/2003	Lain-Ken Lin	JLINP171	2947
25920	7590	07/03/2006	EXAMINER	
MARTINE PENILLA & GENCARELLA, LLP 710 LAKEWAY DRIVE SUITE 200 SUNNYVALE, CA 94085			THOMAS, LUCY M	
			ART UNIT	PAPER NUMBER
			2836	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/698,893	Applicant(s) LIN ET AL.	
	Examiner Lucy Thomas	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-8, and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Xi (US 6,879, 120). Regarding Claim 1, Xi discloses an over voltage protective device (Figures 1 and 2) in parallel connection with a direct-current (DC motor), comprising: a voltage dividing circuit (see voltage dividing circuit formed by R16, R17 in Figure 1) having one end thereof electrically connected to an input voltage of the DC motor, and the other end thereof connected to ground; and a control unit 22a being in parallel connection with one part of the voltage dividing circuit, and for accessing a voltage level of the part of the voltage-dividing circuit to further drive the DC motor, wherein when a voltage level of the part is larger than a reference voltage, the control unit stops driving the DC motor (Column 1, lines 34-44, 60-67, Column 2, lines 1-5, Column 4, lines 64-67). Xi reference teaches that the MCU driver decides whether or not to drive the power switches of the DC motor by accessing the terminal voltage of the second resistor so as to protect DC motor. One end of the voltage dividing circuit of Xi is electrically connected to the input voltage of the DC motor (there is electrical

connection between the DC motor input voltage and the voltage divider circuit (OUT) as seen in Figure 1), and therefore the reference will meet the claim limitations.

Regarding Claim 3, Xi discloses a voltage divider circuit, wherein the reference voltage is a product of the rated voltage of the DC motor, a reciprocal of a total resistance of the voltage-dividing circuit, and a resistance of the part of the voltage-dividing circuit (see reference voltage V_a across R12 in Figure 1, Column 5, lines 7-12). Regarding Claim 4, Xi discloses a voltage divider circuit, which is composed of a first resistor R16 and a second resistor R17, and the part of the voltage dividing circuit is the second resistor (Column 4, lines 64-67). Regarding Claim 5, Xi discloses a control unit 22a, which is a micro control unit (MCU) driver (Column 4, lines 34-39). Regarding Claim 6, Xi discloses a DC motor, which is a DC fan motor (Column 1, lines 9-12).

Regarding Claim 7, Xi discloses an over voltage protective device of DC motor (Figure 1) having a plurality of switches, comprising: a first resistor R16 with one end thereof electrically connected to an input end voltage of the DC motor; a second resistor R17 with one end thereof electrically connected to the other end of the first resistor, and the other end thereof connected to ground; and a micro control unit (MCU) driver 22a having a plurality of output terminals driving the power switches SW1, SW2, and for accessing a terminal voltage of the second resistor; wherein, when the terminal voltage of the second resistor is larger than a reference voltage, the output terminals stop driving the power switches (Column 5, lines 7-12, Column 6, lines 11-20). Xi reference teaches that the MCU driver decides whether or not to drive the power switches of the DC motor by accessing the terminal voltage of the second resistor so as to protect DC

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motor, and the claim language does not rule out the influence of any additional element between the reference voltage and the control unit. One end of the voltage dividing circuit of Xi is electrically connected to the input voltage of the DC motor (there is electrical connection between the DC motor input voltage and the voltage divider circuit (OUT) as seen in Figure 1), and therefore the reference will meet the claim limitations.

Regarding Claim 8, Xi discloses an over voltage protective device of DC motor, wherein the reference voltage is a product of the input voltage of the DC motor, a reciprocal of the sum of resistances of the first resistor and the second resistor, and a resistance of the second resistor (see reference voltage Va across R12 in Figure 1, Column 4, lines 61-64, Column 5, lines 1-12).

Regarding Claim 17, Xi discloses the overvoltage protective device, wherein the control unit further comprises two output terminals (see output terminals of 22a in Figure 1) and the DC motor further comprises two power switches SW1, SW2, each of the output terminals respectively controlling a corresponding one of the two power switches. Regarding Claim 18, Xi discloses the overvoltage protective device, further comprising a second voltage dividing circuit and an operational amplifier (see voltage dividing circuits and the operational amplifier in Figure 1), wherein the second voltage dividing circuit includes two resistors, R1, R12.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xi (US 6,879,120) in view of Wakui (US 6,396,225). Regarding Claims 9, Xi discloses an over voltage protective device of DC motor (Figure 1) comprising: a first voltage dividing circuit R11, R12 having one end thereof electrically connected to an input end voltage of a DC motor, and the other end thereof connected to ground; a control unit 22a for controlling the start of the DC motor; and an operation amplifier having a non-inverted input end electrically connected to the first voltage-dividing circuit, an inverted input end, and an output end thereof electrically connected to the control unit; wherein, when a voltage at the non-inverted input end of the operational amplifier is larger than a voltage at the inverter input end, the operational amplifier outputs an over voltage interrupt signal to the control unit, and the control unit stops driving the DC motor (Column 5, lines 7-12, 20-25, Column 6, lines 11-20). Xi fails to disclose a second voltage dividing circuit, having one end thereof electrically connected to a reference voltage end, and the other end connected to ground. Wakui discloses a second voltage divider circuit connected to the non-inverting end of an operational amplifier 8a-c, which is used as a comparator (Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the operational amplifier of Xi, to include a second voltage divider as taught by Wakui for providing a more flexible operating range, not just a cut off point.

Regarding Claim 10, Wakui discloses a DC motor protection device 11, wherein the first voltage-dividing circuit comprises a first resistor 10a, or c, or e, and a second

resistor 10b, or d, or f, the second voltage-dividing circuit comprises a third resistor 4a and a fourth resistor 4b, the non-inverted input end of the operation amplifier is electrically connected between the first resistor and the second resistor, and an inverted input end of the operation amplifier is electrically connected between the third resistor and the fourth resistor. Regarding Claim 11, Xi discloses an operational amplifier, which is used as a comparator (Column 5, lines 61-63, Column 6, lines 1-14). Regarding Claim 12, Xi discloses a control unit, which is a drive IC 22a (Column 4, lines 17-28). Regarding Claim 13, Xi discloses a DC fan motor (Column 1, lines 7-10).

Regarding Claim 14, Xi discloses an over voltage protective device of DC motor (Figure 1) having plurality of power switches, comprising: a first resistor R11 with one end thereof electrically connected to a voltage input end of the DC motor; a second resistor R12 with one end thereof connected to the other end of the first resistor, and the other end thereof connected to ground; a drive IC 22a having a plurality of output terminals for respectively driving the power switches SW1, SW2; and a comparator having a non-inverted input end thereof connected between the first resistor R11 and the second resistor R12, and an output end thereof electrically connected to the drive IC; wherein, when a voltage at the non-inverted input end is larger than a voltage at the inverted input end, the comparator outputs an over voltage interrupt signal to the drive IC, and the output terminals then stops driving the power switches, SW1, SW2 (Column 4, lines 17-28, Column 5, lines 7-12, 20-25, 61-63, Column 6, lines 1-14, 11-20). Wakui discloses a DC motor protection device 11, comprising a third resistor 4a with one end thereof connected to a reference voltage end and a fourth resistor 4b with one end

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thereof electrically connected to the other end of the third resistor, and the other end thereof grounded, and a drive IC having a plurality of output terminals for respectively driving the power switches; and a comparator having a non-inverted input end thereof connected between the first resistor and the second resistor, an inverted input end thereof electrically between the third resistor and the fourth resistor, and an output end thereof electrically connected to the drive IC. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the operational amplifier of Xi, to include a third resistor and fourth resistor as taught by Wakui for providing a more flexible operating range, not just a cut off point.

Regarding Claim 15, Xi discloses that the reference voltage is set corresponding to the minimum rotational speed of the rotor, which corresponds to the rated voltage of the motor (Column 5, lines 7-12).

Regarding Claim 16, Xi discloses the control unit further comprises two output terminals (see output terminals of 22a in Figure 1) and the DC motor further comprises two power switches SW1, SW2, each of the output terminals respectively controlling a corresponding one of the two power switches. Xi does not disclose two additional output terminals and two additional power switches as recited in Claim 16. Wakui discloses a control unit 1 further comprises four output terminals (see output terminals of 1 in Figure 1) and the DC motor further comprises four power switches (see power switches 5a-d in Figure 1), each of the output terminals respectively controlling a corresponding one of the four power switches. It would have been obvious to those skilled in art at the time the invention was made that Xi's device may be modified to

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provide two additional output terminals and two additional power switches respectively controlling the power switches (to make a total of four) or any number of additional power terminals and power switches to support system requirements.

Response to Arguments

5. Applicant's arguments filed on 4/27/2006 have been fully but they are not persuasive.

Regarding Applicant's statement that the voltage dividing circuit of Xi is not electrically connected to the input voltage of the DC motor: One end of the voltage dividing circuit of Xi is electrically connected to the input voltage of the DC motor, because there is electrical connection between the DC motor input voltage +V and "one end" of the voltage divider circuit (OUT) as seen in Figure 1, and therefore the reference will meet the limitations of Claims 1, 7, 9, and 14.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,811,948 Sato discloses an overvoltage protection device in parallel connection with a direct-current (DC motor) 10, comprising: a voltage dividing circuit (see voltage dividing circuit formed by R1, R2 in Figure 11) having one end thereof electrically connected to an input voltage 2 of the DC motor, and the other end thereof connected to ground; and a control unit 14 being in parallel connection with one part of the voltage dividing circuit.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LT
June 24, 2006



BURTON S. MULLINS
PRIMARY EXAMINER